

Remarks

Claims 1-36 were pending in this application and have been rejected. By way of this amendment, claims 1, 8, 19-21, 23-26 and 35-36 have been amended. Support for the claims amendments can be found in the originally filed specification, claims and Figures at least at, for example, at least at page 7, lines 13-16 and Figure 1. *No new matter has been added.*

The foregoing amendments were made solely in an effort to expedite prosecution and allowance of the present application. Applicants reserve the right to pursue the claims as originally filed in this or a separate application(s).

Accordingly, upon the entry of the present amendment and response, claims 1-36 will remain pending.

Objection to the Specification

The Office has objected to the specification. As requested by the Office, the specification has been amended to include the heading "Brief Description of the Drawings" after line 16 on page 5, thereby obviating this objection.

Objection to the Claims

Claim 36 has been objected to for having an "a" before "said" in the claim. As requested by the Office, "a" occurring before "said" has been deleted on lines 2-3 of the claim, thereby obviating this objection.

Indefiniteness Rejection Under 35 U.S.C. § 112, Second Paragraph

Claims 8, 20-21, 23-26 and 35 have been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for the lack of antecedent basis for certain terms in each of these claims.

Claims 8, 20-21, 23-26 and 35 have been amended to correct for antecedent basis, as appropriate, thereby obviating this rejection.

Anticipation Rejection Under 35 U.S.C. § 102(b)

Claims 1, 6, 9, 13-14, 16-19, 22, 27-28 and 36 have been rejected under 35 U.S.C. § 102(b) as being anticipated by European Patent No. EP0062867 in the name of Adiletta (hereinafter referred to as "Adiletta").

Regarding claim 1, the Office is of the opinion that "*Adiletta* teaches a filter cartridge comprising a filter pack formed of filtering medium (1), a tubular sheath (7) with a perforated wall surrounding the filter medium (1), two respective thermoplastic end caps (5, 6) in each of which there is embedded portion of the filtering pack situated along one of its edges and in each of which is embedded a portion of the sheath (7) situated along one of its edges characterized in that at least one end cap has a first disc (5, 6) and a second disc (16, 17) placed one above the other, the second disc (16, 17) made from thermoplastic, the second disc (16, 17) has the portion of the filtering pack (1) and the sheath (7) embedded, the first disc (5, 6) has a peripheral rim which surrounds the portion of the sheath (7) and the sheath(7) has a shoulder opposite the edge of the rim (see figures 1, 3; page 8, line 16-page 10, line 16)." (See, Office Action mailed 9/06/07 at pages 2 and 3).

Applicants respectfully traverse this rejection. For a prior art reference to anticipate a claimed invention under 35 U.S.C. §102, the prior art reference must teach *each and every limitation* of the claimed invention. See, *Lewmar Marine v. Barient* 827 F.2d 744, 3 USPQ2d 1766 (Fed. Cir. 1987). As discussed in detail *infra*, *Adiletta* fails to teach or suggest each and every limitation of the claimed invention.

Applicants note that the claimed invention is directed, at least in part, to a filtering cartridge comprising: a filtering pack formed by filtering medium; a tubular sheath with a perforated wall, surrounding the filtering medium; and two respective thermoplastic end caps, in each of which there is embedded a portion of the filtering pack situated along one of its edges, and in each of which there is embedded a portion of the sheath situated along one of its edges; and further in that at least one end cap has a first disc and a second disc, placed one above the other, each made from thermoplastic; the second disc has said portion of the filtering pack and the sheath portion embedded; the first disc has a peripheral rim which surrounds the portion of the sheath; and the sheath has a shoulder opposite the edge of the rim of the first disc.

The device disclosed in *Adiletta* is a filter cartridge which includes a tubular filter medium formed of sheet material folded into a tubular configuration with open ends closed off by end caps. See, column 4, lines 60-65. However, in contrast to the claimed filtering cartridge, the cartridge of *Adiletta* does not include a tubular sheath with a perforated wall, as recited in the instant claims. Instead, in the filter cartridge of *Adiletta*, both the outer face as well as the inner face of the filter medium is protected by so-called sheaths, which are subsequently corrugated and even heat-bonded, resulting in one composite tube. (See, column 5, lines 11-18 and lines 49-52, and column 9, lines 25-27). Accordingly, as such, even though *Adiletta* uses the term "sheath," the filter cartridge of *Adiletta* does not really include a separate **tubular sheath surrounding the filter medium**, as in case of the claimed invention. See, for example, Figure 1 in the instant application, which clearly illustrates a tubular sheath (2) surrounding the filter pack/medium. In contrast, in case of the filter cartridge of *Adiletta*, as illustrated in the sheath or tube (7) is heat bonded to the inner mesh sheath (8), resulting in a composite tube of the outer sheath, filter medium and the inner mesh sheath. See, Figures 4-6 and column 5, lines 11-18.

Additionally, *Adiletta* also fails to disclose a filter cartridge which includes *at least one end cap including a first disc and a second disc*, as recited in the instant claims, where the second disc includes a portion of the filtering pack and the tubular sheath embedded in it, the first disc includes a peripheral rim which surrounds the portion of the tubular sheath; and where the sheath includes a shoulder opposite the edge of the rim of the first disc.

Instead, each end cap (5, 6) in the filter cartridge of *Adiletta* includes one intermediate disc of fluorooethylene-propylene copolymer (16, 17) which fits within the cap, which is then applied to the end edges of the composite tube of the outerfilter medium. See, column 5, lines 44-54. Additionally, at column 6, lines 23-25, *Adiletta* discusses that "discs 16', 17' are also of unsintered polytetrafluoroethylene film, bonding the end caps 5, 6 to the filter cylinder." However, there appears to be no teaching in *Adiletta* of a disc including a peripheral rim which surrounds a portion of the tubular sheath or where the sheath includes a shoulder opposite the end of the rim.

Accordingly, *Adiletta* fails to teach or suggest several limitations of the claimed invention and accordingly, cannot anticipate the instant claims.

Nonetheless, without acquiescing to the validity of this rejection and solely in an effort to expedite prosecution and allowance of the claims, claim 1 has been amended to include a *chamber between the filtering pack and the tubular sheath*. It is clear from the teachings of *Adiletta* coupled with the drawings therein, that, the filter cartridge of *Adiletta* does not include a chamber between the sheath or tube 7 and the filter medium 1. Instead, the inner and outer sheaths on either side of the filter medium are corrugated or heat-bonded, as discussed *supra*, to form a composite tube.

In view of the foregoing amendment and arguments, Applicants respectfully submit that *Adiletta* fails to teach or suggest each and every limitation of claim 1 or any of claims 6, 9, 13-14, 16-19, 22, 27-28 and 36, depending directly or indirectly therefrom, and, accordingly, request that this rejection be reconsidered and withdrawn.

Obviousness Rejections Under 35 U.S.C. § 103(a)

Claims 2-5, 7-8, 10-12, 20-21 and 29-30 have been rejected under 35 U.S.C. § 103(a) as allegedly being obvious over *Adiletta* in further view of U.S. Patent No. 4,112,159 in the name of Pall (hereinafter referred to as "*Pall I*") and U.S. Patent No. 4,521,309, also in the name of Pall (hereinafter referred to as "*Pall II*") on the ground that "[c]laims 2-5, 7-8, 10-12 and 20-21 essentially differ from the filter cartridge of *Adiletta* in reciting thinner neck in the portion of sheath or core, provision of frustoconical surface in sheath or core and corresponding surface in the rim of the first disc. . . . It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify the cartridge of *Adiletta* to provide thinner neck in the portion of sheath or core, provision of frustoconical surface in sheath or core and corresponding surface in

the rim of the first disc or end cap for disclosed advantages . . . as suggested by *Pall '159* and *Pall '309*." (See, Office Action mailed 9/06/07 at page 5).

Further, with respect to claims 29-30, the Office has taken the position that "*Adiletta* teaches that any plastic or resinous material or any metallic material resistant to corrosive attack and having a softening point above the temperature of use of the polymer filter can be employed for the end caps (see page 19, lines 5-9). . . . *Pall '309* teaches that, where a corrosive fluid is being filtered, the internal support or core filter material and end cap can be made entirely from thermoplastic resins, such as polyethylene, polypropylene or polyamide, or any of the other thermoplastic materials (see. Col. 8, line 48-col. 9, line 25; col. 9, lines 45-55)." (See, Office Action mailed 9/06/07 at page 6).

Additionally, claim 15 has been rejected as allegedly being obvious over *Adiletta* on the ground that "[i]t would have been an obvious matter of design choice to have desired number of interruptions extending over an arc whose angle at the apex is approximately 30 degrees . . ." (See, Office Action mailed 9/06/07 at page 6); claims 23-26 have been rejected as allegedly being obvious over *Adiletta* and further in view of *Pall II* on the ground that "[c]laims 23-26 essentially differs [sic] from the filter cartridge of *Adiletta* in reciting that the melt flow rate of the materials for the first disc and the second disc . . . Listed thermoplastic materials in the Table of *Pall '309* inherently has [sic] numerous range of melt flow rates." (See, Office Action mailed 9/06/07 at page 7); claims 31-32 and 34-35 have been rejected as allegedly being obvious over *Adiletta* and further in view of U.S. Patent No. 6,186,341 in the name of Konstantin *et al.* (hereinafter referred to as "*Konstantin*") on the ground that "[i]t would have been obvious to a person of ordinary skill in the art at the time the invention was made to substitute the known filter medium for the filter medium of *Adiletta*." (See, Office Action mailed 9/06/07 at page 8); and claim 33 has been rejected as allegedly being obvious over *Adiletta* in view of U.S. Patent No. 4,579,698 in the name of Meyering *et al.* (hereinafter referred to as "*Meyering*") on the ground that "[i]t would have been obvious to a person of ordinary skill in the art at the time the invention was made to substitute the known hydrophilic PVDF membrane for the hydrophilic filter medium of *Adiletta* made from a coating of fluoroethylene polymer." (See, Office Action mailed 9/06/07 at page 8).

Applicants respectfully traverse these rejections for the following reasons.

As an initial matter, Applicants note that each of the aforementioned rejections is improper in form. Specifically, the Office has rejected only the dependent claims as being obvious over one or more cited references. However, Applicants note that, by definition, a dependent claim is construed to include all limitations of the independent claim that it depends from. See, for example, M.P.E.P. § 601.08(n) and 37 C.F.R. §1.75(c). Accordingly, dependent claims alone cannot be deemed obvious.

Nonetheless, without acquiescing to the validity of this rejection and solely in an effort to be fully responsive and expedite the prosecution and allowance of the pending claims, Applicants provide the following arguments.

A proper *prima facie* obviousness rejection requires that there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Additionally, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *See* M.P.E.P §2143. Also, see *In re Vaeck*, 947 F.2d 488, 493, 20 U.S.P.Q.2d 1438, 1443 (Fed. Cir. 1991) (the teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure).

Furthermore, as set forth in the guidelines put forth by the United States Patent and Trademark Office, a legal conclusion of obviousness must be supported by “[s]ome teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art references or to combine prior art reference teachings to arrive at the claimed invention.” (*See*, column 1, at page 57529 of the Fed. Reg. Vol. 72, No. 195 (Oct. 10, 2007)).

The Office appears to arbitrarily conclude that it would have been obvious to one of ordinary skill in the art to modify the teachings of one or more of the aforementioned cited references to arrive at the claimed invention, as set forth in one or more of claims 2-5, 7-8, 10-12, 15, 20-21, 23-26, 29-30, and 31-35; however, the Office fails to provide a specific teaching, suggestion or motivation in the primary reference *Adiletta* or any of the other cited references, which would have led one of ordinary skill in the art to modify the teachings of one or more of the cited references to arrive at the claimed invention.

As discussed *supra*, the primary reference *Adiletta* fails to teach or suggest several limitations of the claimed invention. Applicants note that not only do none of *Pall I*, *Pall II*, *Konstantin* and/or *Meyering* cure the deficiencies of *Adiletta*, but none of *Pall I*, *Pall II*, *Konstantin* and/or *Meyering* provide any teaching or motivation to modify one or more of the cited references to arrive at the claimed invention, as discussed in detail *infra*.

Pall I discusses processes for the production of modular tubular filter elements where the tubular filter elements are wound around a central core. *See Abstract*. Accordingly, *Pall I* discusses having a core 12 surrounded by the fibrous layer which forms the filter sheet 15. In contrast, in case of both the claimed invention as well as the cartridge of *Adiletta*, the sheath or core surrounds the filter pack. The Office appears to rely on the structure referred to by the numeric value 38 in *Pall I* as allegedly referring to a thinner neck in the portion of the sheath or core. However, contrary to the Office's contention, the numeric value 38 in *Pall I* refers to the *interior of the core*, and not to a thinner neck. *See*, for example, column 15, lines 34-40. Further, even if *arguendo*, it was assumed that the core had a thinner neck, as alleged by the Office, it would be referring to the layer on the inside of the filter sheet which includes a thinner neck. Accordingly, not only does *Pall I* fail to cure the deficiencies of *Adiletta*, but based on the teachings of *Pall I*, one of ordinary skill in the art would have had no motivation to

modify the cartridge of *Adiletta*, such that the outside sheath of the cartridge includes a thinner neck.

Pall II is even further removed from the claimed invention and fails to either cure the deficiencies of *Adiletta* or to modify the cartridge of *Adiletta* to arrive at the claimed invention. Specifically, *Pall II* discloses a filter cartridge which includes a filter sheet and a supporting inner core or outer sheath. See Abstract. However, the design of the cartridge in *Pall II* is completely different from that disclosed in *Adiletta* or the claimed invention. For example, *Pall II* does not describe a cartridge which includes two discs in an end cap. Instead, in the cartridge of *Pall II*, there is a single end cap fixed to the support in a leak-tight fashion. Further, contrary to the Office's contention, *Pall II* also does not appear to teach or suggest a core or sheath having a thinner neck. Accordingly, like *Pall I*, *Pall II* also fails to cure the deficiencies of *Adiletta*.

Similarly, both *Konstantin* and *Meyering* are also irrelevant the claimed invention. For example, *Konstantin* discusses maintaining hydrophilicity of porous separation membranes by bonding the membranes to thermoplastic fiber substrates. See Abstract. Further, *Meyering* provides a filter element including a hydrophilic organic polymeric microporous filter membrane and a filter housing. See Abstract. However, there is no teaching or suggestion in *Konstantin* or *Meyering* of a cartridge including an end cap that includes two discs.

Lastly, it is to be noted that none of *Pall I*, *Pall II*, *Konstantin* and *Meyering* teach or suggest the cartridge which includes a ***chamber between the filtering pack and the tubular sheath***, as set forth in amended claim 1.

In view of the foregoing, Applicants submit that each of *Pall I*, *Pall II*, *Konstantin* and *Meyering* are directed to cartridges and/or methods which are divergent from both the cartridge of the claimed invention as well as the cartridge of *Adiletta* and, as such, provide no motivation to combine the teachings of the various references and/or modify the cartridge of *Adiletta* to arrive at the claimed invention. Furthermore, even if the teachings of the various references were combined, they would not teach each and every limitation of the claimed invention.

Accordingly, Applicants respectfully request that this rejection be reconsidered and withdrawn.

Conclusion

In view of the foregoing amendments and arguments, allowance of the instant application with all pending claims is respectfully solicited. If a telephonic conversation with Applicants' attorney would help expedite the prosecution of the above-identified application, the Examiner is urged to call the undersigned at the number below. Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account no. 13-3577.

Respectfully submitted



Sapna Mehtani, Ph.D., J.D.
Attorney for Applicant
Reg. No. 56,126

January 7, 2007
Millipore Corporation
290 Concord Road
Billerica, Massachusetts 01821
Tel.: (978) 715-1086
Fax: (978) 715-1382